

Claims

- Sub B1
1. Method to create a topology map indicating the quality of connectivity of each network device of a wireless network with all other network devices in said wireless network, **characterized by** the following steps:

- performing a measurement phase in which a calibration signal is successively broadcasted by each network device and in which all respective other network devices receiving said calibration signal measure the received signal quality;

- performing a reporting phase in which the measurement results are transmitted from each network device to the network device creating said topology map; and

- performing a creating phase in which said topology map of the network is created within the network device creating said topology map on basis of all received measurement results.

2. Method according to claim 1, **characterized in** that said calibration signal is transmitted in a dedicated control channel.

3. Method according to claim 1 ~~or 2~~ **characterized in** that said measurement results are reported in a respective dedicated control channel.

4. Method according to ~~anyone of the preceding claims~~ ^{Claim 1}, **characterized in** that said calibration signal is transmitted with the maximum allowed transmit power level.

5. Method according to ~~anyone of the preceding claims~~ ^{Claim 1}, **characterized in** that said topology map is updated when a new network device joins the network.

6. Method according to ~~anyone of the preceding claims~~ ^{Claim 1}, **characterized in** that said topology map is updated after a predetermined amount of time.

7. Method according to ~~anyone of the preceding claims~~ ^{Claim 1}, **characterized in** that said topology map is stored in the central controller.

a 1 8. Method according to ^{Claim 1} ~~anyone of the preceding claims~~, characterized in that said topology map is broadcasted in the whole network.

a 5 9. Method according to ^{Claim 1} ~~anyone of claims 1 to 7~~, characterized in that only the parts of the topology map related to a specific network device are transmitted to said specific network device.

a 10 10. Method according to ^{Claim 1} ~~anyone of the preceding claims~~, characterized in that said calibration signal is transmitted using an omni-directional antenna.

a 11. Method according to ^{claim 1} ~~anyone of the preceding claims~~, characterized in that the contents of the topology map are codes that are mapped to receive power values.

a 15 12. Method according to ^{Claim 1} ~~anyone of the preceding claims~~, characterized in that said measurement phase and/or reporting phase is initiated by the network device creating said topology map.

20 13. Network device for a wireless network, characterized by means to broadcast a calibration signal, to measure a power level of a received calibration signal, and to transmit its measurement results to another network device or to store it internally.

25 14. Network device according to claim 13, characterized in that said functions are performed on demand of another network device or on an internal demand.

a 30 15. Network device according to claim 13 ~~or 14~~, characterized by a calibration decoder (9) that initiates the broadcast of a calibration signal and the measurement of the reception quality of one or more incoming calibration signals upon reception of a measurement control signal.

35 16. Network device according to claim 15, characterized in that said calibration decoder (9) initiates the transmission of one or more measurement results upon reception of a reporting control signal.

Claim 13

~~18. Network device for a wireless network, characterized by means to initiate a measurement phase, to initiate a reporting phase and to perform a creation of a topology map on basis of measurement results received during the reporting phase.~~

19. Network device according to claim 18 including the features of anyone of claims 16 to 20.

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